

TERMINAL FOR GUIDEWAY TRANSIT SYSTEM**Technical Field**

5 The present invention relates to a terminal for a  
guideway transit system. The terminal for guideway transit  
of the present invention can reduce the size of the  
terminal by parking numerous vehicles for use in high-  
frequency service at an external parking space or other  
floor using an external entry or a ramp instead of a large  
10 terminal.

Also, the dual-mode vehicles remodeled from the  
private cars or the taxies, for possibly operating on a  
guideway, can use the guideway by entering it through the  
external entry of this terminal.

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**Background Art**

Since a current transit system for multi passengers  
serviced on the basis of an on-time system such as the  
general subway and the light rail transit, etc. causes  
20 traffic congestion and is operated in such a manner as to  
stop at every station, there has been a problem in that it  
takes much time to their destination.

In order to solve such a problem, the applicant of  
the present invention has proposed the Korean Patent  
25 Registration No. 10-0250021 titled "Personal rapid transit  
system utilizing both course reservation and branch stop  
technologies".

The above system installs a guideway of a net shape  
at underground, overhead construction, or on the ground,  
30 allows a vehicle to perform automatic driving on the  
guideway toward the destination at high speed, provides a  
guideway transit of high-frequency service, and installs a  
terminal in every predetermined region.

The terminal of such system, however, requires a large parking space in order to park numerous vehicles needed for the high-frequency service, and allows a passenger to go up and down a stairway 91 to alight from  
5 and ride in a vehicle, so that he or she suffers from an inconvenient during the use.

Also, there always exists a risk of head-on collision of vehicles, for the direction where vehicle proceeds to a berth from a U-turn section 90 is opposite to the direction  
10 where the vehicle proceeds to a parking lot from the U-turn section 90.

Also, the above system is problematic in that the dual-mode vehicle that possibly operates on both the guideway where pilot lines are formed and the general road  
15 cannot use the guideway through the entry.

#### Disclosure of Invention

The present invention relates to a terminal for a guideway transit system.

20 The present invention has been made in order to solve the above problems, and it is, therefore, an object of the present invention to reduce the size of the terminal by parking the vehicles on the external parking section through the external entry, and to allow the dual-mode  
25 vehicle entering from the outside road to use the guideway through the terminal.

It is another object of the present invention to prevent an accident of vehicles by running a U-turn section where the vehicles perform U-turn in such a manner as to  
30 move one-way only, and allow a passenger to move horizontally instead of going up and down the stairway upon entering/alighting into/from the vehicles.

The terminal for a guideway transit of the present

invention could reduce the size of the terminal by parking the vehicles at the external parking space or other floor using the external entry or the ramp in stead of requiring a large terminal in order to park numerous vehicles for use  
5 in high-frequency service.

Also, a dual-mode vehicle remodeled from a private car or a taxi, for possibly operating on a guideway, can use the guideway by entering the guideway through the external entry of the terminal.

10 To achieve the above objects, there is provided a terminal for the guideway transit of the present invention comprising: an entry section which is connected at one side to a guideway on which a plurality of pilot lines for guiding the movement of a vehicle are formed, and to which  
15 each of the pilot lines of the guideway is extended in such a manner as to be divided into several branches; an entering/alighting section at which a plurality of berths where entering/alighting of a passenger or a freight into/from the vehicle is performed, is installed after the  
20 vehicle moves to the entering/alighting section along the pilot lines each divided into the several branches of the entry section and stops at the entering/alighting section; an U-turn section for allowing the vehicle that has finished alighting from the vehicle at the  
25 entering/alighting section to perform U-turn; and a parking section which is connected at one side to the U-turn section for allowing the vehicle that has finished operation to park at the sectioning park, and at the other side of which an external entry connected to an external  
30 general road is formed so that a dual-mode vehicle that operates on both the general road and the guideway can enter/exit into/from the parking section through external entry.

The technical concept of the present invention will be described in more detail hereinafter with reference to the accompanying drawings.

5        Since the accompanying drawings merely illustrate one example for explaining the technical concept of the present invention in a more concrete way, the technical concept of the present invention is not limited to those accompanying drawings.

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The entry section 10, which is an element of the present invention, is connected to the guideway 70 and the pilot lines 71 on the guideway 70 are divided into several branches.

15        Here, as disclosed in the Korean Patent Registration No. 0250021, the guideway 70 is of a multi-story structure that extends over the ground, the underground, and the overhead, and the pilot lines 71, a controlling signal apparatus are installed at the center of the lane of the  
20 bottom or the ceiling.

Also, the vehicle 60, which is a transit that could move on the above-described guideway 70, is a vehicle for driving on the guideway 70, by having, in its inside, a sensor for detecting the pilot lines 71 on the guideway 70,  
25 a sensor for detecting a controlling signal on the road, an obstacle detecting sensor, and a computer to which a program necessary for driving of the vehicle is equipped, as suggested by the Korean Patent Registration No. 0250021.

And, it is preferable that a control station 80  
30 having a control system built therein is installed at one side or both sides of the entry section 10 so that indispensable operations such as start, stop and lighting of a vehicle can be controlled.

With such a configuration, a vehicle 60 enters the entry section 10 from the guideway 70, and enters the berth 21 through one of the pilot lines 71 divided into several branches under the control of the control system installed in the inside of the control station 80, and also enters the guideway 70 one by one from the several branches under the control of the control system upon departure.

Also, according to the present invention, to secure flexibility depending on traffic change, both the pilot lines 71 of the entering direction and that of the going out direction are connected to the middle berths as shown in FIG. 2.

Namely, if a number of vehicles enter the terminal, the entry lanes are increased under the control of the control system, thus the present invention is of such structure that can flexibly cope with traffic change.

The entering/alighting section 20, which is a constituent element of the present invention, is a place where entering/alighting of a passenger is performed, and the vehicle 60 that has passed through the entry section stops under the control of the control system in the terminal so that a passenger may alight.

Also, the vehicle that has carried passengers leaves at the appropriate time for entering the main lane under the control of the control system.

In such an entering/alighting section 20, a plurality of berths 21 is arranged in parallel. Since tens of seconds are taken for entering/alighting of the passenger's into/from the vehicle, a plurality of berths 21 is required for high-frequency service of several-seconds interval to be possible on the guideway 70.

At this time, a plurality of entries could also be provided at one berth 21 so that entering/alighting of the

passengers may be performed at multiple vehicles 60, simultaneously.

Also, in ordinary time, the berths 21 are divided in half, respectively, for being used as an alighting berth and an entering berth, but during rush hours, movement of the vehicles 60 entering the berths 21 are controlled by the control system as described above so that the ratio of the alighting berths to the entering births is adjusted.

In the U-turn section 30, which is a constituent element of the present invention, each of the pilot lines 71 has an U-shape so that the vehicle 60 move back to the alighting/entering section 20 for entering of passengers into the vehicle after alighting has been performed at the vehicles 60 that have entered through the entry section 10.

At this time, when the vehicles 60 that have entered the U-turn section 30 is controlled to move one-way only, accident occurring probability during progression is reduced.

Also, the U-turn section 30 is formed on other floor different from the floor on which the passengers move.

For example, as shown in FIG. 3, a ramp to the underground is provided at the U-turn section 30 so that the vehicles may perform U-turn on the underground.

Also, it may be possible to form the U-turn section on the same plane, move the vehicles 60 vertically by installing an elevator or a lift at the point that is connected to the entering/alighting section 20, allow the vehicles to perform U-turn, then allow the vehicles to enter the entering/alighting section 20 using again the elevator or the lift.

With such a configuration, the passengers do not suffer from an inconvenience of having to go up and down the stairway when moving between the waiting room 31 and

the berth 21 and accident occurring probability is reduced.

The parking section 40, which is a constituent element of the present invention, is connected to the U-turn section 30 in its one side, thus the vehicles 60 that have entered the U-turn section 30 could park there.

At this time, entry to the U-turn section 30 from the parking section 40 is performed in the same direction as the progression direction of the entering vehicles that have passed through the entering/alighting section 20 as shown in FIG. 2.

Namely, in FIG. 1, there is a high probability of colliding with the vehicles 60 that have directly entered/got out of the parking section 40 without passing through the U-turn section 30, but the vehicles entering the U-turn section 30 from the parking section 40 and the vehicles performing U-turn at the U-turn section 30, enter in the same direction without facing each other, and thus accident occurring probability can be reduced.

At such a parking section 40, a maintenance station 42 and a car wash 43 may be installed so that maintenance and repair such as vehicle checking, car wash and control part exchange can be serviced as disclosed in the Korean Patent Registration No. 10-0250021.

The vehicles that have entered the terminal go to other terminal, passing by the U-turn section 30, for continuous operation, but during slack time, the vehicles 60 is park at the parking section 40, and most of the numerous vehicles 60 that have been high-frequency serviced are parked at the external parking section 50 through the external entry 41, thus the size of the terminal is reduced.

Such an external parking section 50 may be formed adjacent to the terminal, or the pilot lines 71 for connecting the existing external parking lot to the parking

section 40 of the terminal, may be formed so that the vehicles 60 can be parked at the external parking section 50 as well as the parking section 40.

5 With such a configuration, the control system determines whether or not to move the vehicle by forming a standby line 72 at the pilot lines 71 formed in the inside of the terminal.

10 More specifically, as shown in FIG. 2, the standby line 72 is intended to stop the vehicle and the standby line 72a is intended to move/pass the vehicle, so that it is determined by control systems whether or not to move the vehicle.

15 In the meantime, in the case where the number of vehicles entering the terminal increases sharply like that of vehicles during the rush hours, the vehicles 60 stop at the entry section 10 before reaching the berth 21. According the conventional terminal, the more vehicles cannot stand by for alighting, since the interval between the pilot lines is short.

20 In order to avoid such a problem, a plurality of the pilot lines 71 adjacent to the entering/alighting section 20 is arranged in such a manner that they maintain the interval there between to the extent of being greater than the width of the vehicle over a predetermined distance from a point adjacent to the entering/alighting section 20, thus  
25 more vehicles 60 can stand by for alighting at the entry section 10 in the case where the vehicles that have entered for alighting increases.

30 Also, a standby line 72 is formed between the entering/alighting section 20 and the entry 10 so that the vehicle 60 that has finished entering of the passengers at the berth 21, may proceed up to the standby line 72 formed at the entry section 10, standing by for departure.



Namely, in case of many passengers, the vehicle 60 that has finished entering of the passengers, proceeds toward the front side of the entry 10, and the passengers enter the following vehicle 60 at the berth 21 even during  
5 departure-standby time for waiting for a departure signal, thus the time for the passengers to enter the vehicle is shortened.

#### Brief Description of Drawings

10 The above objects, features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a schematic plan view of a conventional  
15 terminal for a guideway transit;

FIG. 2 is a schematic plan view of a terminal for a guideway transit according to the present invention; and

FIG. 3 is a schematic cross-sectional view of a terminal for a guideway transit according to the present  
20 invention.

#### Best Mode for Carrying Out the Invention

Although the present invention will now be described through preferred embodiments of a terminal for a guideway  
25 transit with reference to the accompanying drawings, the present invention is not limited to those embodiments.

#### [Embodiment 1] Construction 1 of a terminal for a guideway transit

30 An entry section 10 is formed on the end of the guideway 70 on which a vehicle 60 moves one by one in both directions.

As shown in FIG. 2, the entry section 10 is

configured in such a manner that each of the pilot lines 71 is divided into four branches.

At this time, in FIG. 2, the third pilot line 71 from the top is connected to a pilot line 71 oriented toward the entering direction of the guideway 70, and the sixth pilot line 71 is connected to a pilot line 71 oriented toward the outgoing direction of the guideway 70. With such a connections, the vehicle 60 entering from the entry road can enter the terminal using six branches at the maximum.

10 Namely, in the case where there is increased the number of the entering vehicles 60, the pilot line 71 oriented toward the entering direction is changed into six in number and the pilot line 71 oriented toward the outgoing direction becomes two in number. On the contrary, 15 in the case where there is increased the number of the outgoing vehicles 60, the pilot line 71 oriented toward the entering direction is changed into two in number and the pilot line 71 oriented toward the outgoing direction is changed into six in number.

20 At this time, a control station 80 having a control system built therein is installed at both corners of the entry section 10. And the divided pilot lines 71 are provided in parallel with each other and one berth 21 is installed every two progression lines 71, so that the 25 entering/alighting section 20 is formed. As shown in FIG. 2, two entries are installed at upper and lower points of one berth 21, respectively, so that the passengers may alight from or ride in the vehicle.

The U-turn section 30 is formed in succession with such berth 21 so that a ramp 32 past the entering/alighting section is provided at the underground so as to connect the pilot lines 71 to the underground.

The pilot lines 71 on the U-turn section 30 are all

formed in such a manner that the vehicles 60 perform U-turn on-way only, and the pilot lines 71 forming curves, respectively, are connected to the pilot lines 71 of one straight line so that the vehicles 60 can enter an arbitrary berth 21, passing through the U-turn section 30, under the control of the control system. In the meantime, a waiting room 31 is formed on the upper story of the U-turn section 30 so that the passengers may move horizontally between the waiting room 31 and the berth 21.

Also, a parking section 40 is installed adjacent to the U-turn section 30, and in the case where large parking area is required, the parking section 40 is formed in two-story and movement between floors is performed along the ramp 32 as shown in FIG. 2. The pilot lines 71 are formed at the parking section 40 and movement of the vehicles in the parking section 40 is controlled by the control system.

Also, a maintenance station 42 is installed at one side of the parking section 40 and a car wash 43 is installed at the other side of the parking section 40 so that the vehicle 60 may be moved to the maintenance station 42 upon finding of trouble in the vehicle by the sensor mounted in the inside of the vehicle and the vehicle may be moved to the car wash 43 every predetermined period of time for automatic washing.

Also, as shown in FIG. 2, an entry road for entering the U-turn section 30 from the lower portion of the parking section 40 is formed so that the vehicle can enter the U-turn section 30 while rotating clockwise. That is, after the vehicle from the entering/alighting section 20 and the vehicle from the parking section 40 all enter the U-turn section 30, it moves one-way only. At this time, an external entry 41 connected to the general road in the outside is installed at the parking section 40 so that the

dual-mode vehicle could enter the terminal through the external entry 41.

Also, an external parking section 50 connected to the parking section 40 is formed, and the pilot lines 71 are also formed at the external parking section 50, so that the vehicle 60 may be parked at the external parking section 50 through the external entry 41 of the parking section 40.

With such a configuration, the dual-mode vehicle capable of operating on the general road in the outside can drive on the guideway after entering the terminal through the external entry, and numerous vehicles 60 that are high-frequency serviced may be parked at the external parking section 50, thus the size of the terminal can be reduced.

In the case where the number of the passengers entering the terminal increases, six berths 21 are used for alighting and two berths 21 are used for entering.

By such a configuration, there is provided a terminal for the vehicle 60 wherein the U-turn section 30 is formed at the underground and the passenger's moves horizontally on the first floor.

#### [Embodiment 2] Construction 2 of a terminal for a guideway transit

In the terminal of the first embodiment, the pilot lines connected to one berth 21 are formed with an interval of 2m maintained over a length of 10m so that the vehicles 60 can stop side by side at the end of the berth 21.

Namely, there is provided a terminal for the guideway transit wherein in the case where the number of entering vehicles increases, more vehicles can stand by for alighting at the entry section 10.

#### [Embodiment 3] Construction 3 of a terminal for a

**guideway transit**

In the terminal of the first embodiment, the standby line 72 for indicating a stopping position of the vehicle 60 is formed at necessary points of the pilot lines 71 and such standby lines 72 are also formed at the entering/alighting section 20 and the entry section 10, so that the vehicle 60 that has finished entering of the passengers at the berth 21, proceeds up to the standby line 72 formed at the entry section 10, and stands by for departure.

By such a configuration, there is provided a terminal for the guideway transit, wherein in case of many passengers, the vehicle 60 that has finished entering of the passengers, proceeds up to the standby line 72 at the front side of the entry 10 so that the passengers enter the following vehicle 60 at the berth 21 even during departure-standby time for waiting for a departure signal, thereby shortening the time for the passengers to enter the vehicle.

The operations of the terminal for the guideway transit having the construction as described above in the first, second and third embodiments of the present invention will be explained hereinafter.

The vehicle 60 moving along the guideway 70 enters the terminal, and then goes to any one of a plurality of berths 21 along the pilot lines 71 divided into several branches to stop thereat. Then, after the passengers alight from the stopped vehicle 60, the vehicle 60 enters the U-turn section 30.

The U-turn section 30 is separated as downstairs from the path on which the passenger's move, and the entire vehicle 60 entering from the U-turn section 30 and the parking section 40 perform U-turn in the same direction,

thereby reducing a risk of collisions between vehicles.

The vehicle 60 that has come back to the entering/alighting section 20 after passing through the U-turn section 30 stops at the berth 21 so that the  
5 passengers may enter into the vehicle, then departs under the control of the control system.

The dual-mode vehicle can enter the terminal from the external general road through the external entry 41 of the parking section 40, and run on the guideway. Also, during  
10 slack time, most of vehicles 60 are parked at the external parking section 50 through the external entry 41.

#### **Industrial Applicability**

According to the terminal for the guideway transit of  
15 the present invention, the numerous vehicles for use in the high-frequency service on the guideway can be parked at the outside of the terminal through the external entry, or parked at other floor through a ramp, so that a large parking area is secured, thereby remarkably reducing the  
20 dimension of the terminal.

Also, the dual-mode vehicle for possibly operating on both the general road and the guideway can drive on the guideway by entering the terminal through the external entry, and the number of vehicles can be reduced as much as  
25 that of the dual-mode vehicles serviced.

Also, since the U-turn section is configured so that a vehicle moves one-way only, a risk of collisions between vehicles is reduced and the passengers can move horizontally in order to alight from and ride in the  
30 vehicle instead of going up and down the stairways. Also, with installation of the standby line in front of the berth, the time for the passengers to enter the vehicle can be shortened and a standby capacity for alighting can be

increased as well.

While the present invention has been described with reference to the particular illustrative embodiments, it is not to be restricted by the embodiments but only by the  
5 appended claims. It is to be appreciated that those skilled in the art can change or modify the embodiments without departing from the scope and spirit of the present invention.